

Amendments to the Claims:

10/537809
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The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A semiconductor device comprising an n-channel region and a p-channel region formed on a common substrate, both channel regions having a source and a drain, the device further comprising a gate electrode common to both channel regions and spaced from the substrate by an area of non-polarising dielectric material arranged under the gate electrode.
2. (Original) A semiconductor device according to claim 1 wherein at least one of the length and/or the width of one of the channel regions differs from that of the other channel region.
3. (Currently Amended) A semiconductor device according to claim 1-~~or 2~~ wherein the gate electrode is dimensioned to have a specified ratio relative to the width and length of one of the channel regions.
4. (Currently Amended) A semiconductor device according to claim 1 ~~any one of claims 1 to 3~~ wherein at least one of the n-channel and the p-channel regions has a further region, arranged between either the source and/or drain regions and the channel region, having a doping concentration less than that of the source and/or drain region.
5. (Currently Amended) A semiconductor device according to claim 1 ~~any one of the preceding claims~~ wherein an area of the substrate which separates the n-type source and n-type drain of the n-channel region, and the p-type source and p-type drain of the p-channel region has intrinsic doping only.
6. (Currently Amended) A semiconductor device according to claim 1 ~~any one of the~~

~~preceding claims~~ wherein at least one of the n-channel and p-channel regions comprises a thin film region.

7. (Original) A semiconductor device according to claim 6 wherein the thin film region comprises an organic semiconductor material.

8. (Currently Amended) A semiconductor device according to claim 1 ~~any one of claims 1 to 6~~ wherein the substrate comprises a thin film substrate material.

9. (Original) A semiconductor device according to claim 8 wherein the thin film substrate material comprises a direct band gap material.

10. (Currently Amended) A semiconductor device according to claim 8 ~~or 9~~ wherein the thin film substrate material is supported on a transparent supporting material.

11. (Currently Amended) A semiconductor device according to claim 8 ~~or 9~~, wherein the gate electrode and the non-polarising dielectric material comprise transparent materials.

12. (Currently Amended) A semiconductor device according to claim 1 ~~any one of the preceding claims~~ wherein the substrate has a thickness arranged to enable the n-channel region and p-channel region under the gate to electrode function as fully or partially depleted regions.

13 (Currently Amended) A semiconductor device according to claim 1 ~~any one of the preceding claims~~ wherein the source of one region is serially coupled with the drain of the other region to provide a device for functioning as an inverter.

14. (Currently Amended) A method of operating a semiconductor device according to claim 1 ~~any one of the preceding claims~~ comprising selecting a voltage applied to the gate electrode so as to selectively switch one of the channel regions between a non-conducting and a conducting condition independently of the other channel region.

15. (Currently Amended) A method of operating a semiconductor device according to claim 8 ~~any one of claims 8 to 11~~ comprising operating one of the channel regions as a thin film region and coupling the source and drain regions of the other channel region to a bias voltage, thereby to alleviate the kink effect in the said one channel region.
16. (Currently Amended) A method of operating a semiconductor device according to claim 10 ~~or claim 11~~ as a light emitting device.
17. (Currently Amended) A semiconductor device according to claim 10 ~~or 11~~ wherein the semiconductor device is a light emitting device.